

## CLAIMS

We claim:

1                   1.       A method of controlling rate distortion in a video compression and  
2 encoding system, said method comprising:  
3       selecting a distortion value D near a desired distortion value;  
4       determining a quantizer value Q using said distortion value D;  
5       calculating a Lagrange multiplier lambda using said quantizer value Q; and  
6       encoding a pixelblock using said Lagrange multiplier lambda and said quantizer  
7       value Q.

1                   2.       The method as claimed in claim 1, said method further comprising:  
2 increasing said Lagrange multiplier lambda when a buffer exceeds an overflow  
3       threshold value and increasing said quantizer value Q if said Lagrange  
4       multiplier lambda exceeds a maximum lambda threshold; and  
5       decreasing said Lagrange multiplier lambda when a buffer falls below an  
6       undererflow threshold value and decreasing said quantizer value Q if said  
7       Lagrange multiplier lambda falls below a minimum lambda threshold.

1                   3.       The method as claimed in claim 2, said method further comprising:  
2 recalculating said Lagrange multiplier lambda if said quantizer value Q is  
3       adjusted.

1                   4.     The method as claimed in claim 2, said method further comprising  
2     wherein said Lagrange multiplier  $\lambda$  is increased or decreased by an amount  
3     dependent upon said quantizer value  $Q$ .

1                   5.     The method as claimed in claim 1, said method further comprising:  
2     calculating a visual mask value  $M$ ; and  
3     increasing said Lagrange multiplier  $\lambda$  when said visual mask value  $M$  times  
4     said Lagrange multiplier  $\lambda$  is less than a maximum threshold for said  
5     Lagrange multiplier  $\lambda$ .

1                   6.     The method as claimed in claim 5 wherein said maximum  
2     threshold for said Lagrange multiplier  $\lambda$  is dependent upon said quantizer value  $Q$ .

1                   7.     The method as claimed in claim 5, said method further comprising:  
2     increasing said Lagrange multiplier  $\lambda$  when a buffer exceeds an overflow  
3     threshold value and increasing said quantizer value  $Q$  if said Lagrange  
4     multiplier  $\lambda$  exceeds a maximum  $\lambda$  threshold; and  
5     decreasing said Lagrange multiplier  $\lambda$  when a buffer falls below an  
6     undererflow threshold value and decreasing said quantizer value  $Q$  if said  
7     Lagrange multiplier  $\lambda$  falls below a minimum  $\lambda$  threshold.

1                   8.     The method as claimed in claim 7, said method further comprising:  
2     recalculating said Lagrange multiplier  $\lambda$  if said quantizer value  $Q$  is  
3     adjusted.

1                   9.     A computer-readable medium, said computer-readable medium  
2     containing a set of computer instructions for implementing a method of controlling rate  
3     distortion in a video compression and encoding system with the following steps:  
4         selecting a distortion value  $D$  near a desired distortion value;  
5         determining a quantizer value  $Q$  using said distortion value  $D$ ;  
6         calculating a Lagrange multiplier  $\lambda$  using said quantizer value  $Q$ ; and  
7         encoding a pixelblock using said Lagrange multiplier  $\lambda$  and said quantizer  
8         value  $Q$ .

1                   10.    The computer-readable medium as claimed in claim 9 wherein said  
2     set of computer instructions further implement the steps of:  
3         increasing said Lagrange multiplier  $\lambda$  when a buffer exceeds an overflow  
4         threshold value and increasing said quantizer value  $Q$  if said Lagrange  
5         multiplier  $\lambda$  exceeds a maximum  $\lambda$  threshold; and  
6         decreasing said Lagrange multiplier  $\lambda$  when a buffer falls below an  
7         undererflow threshold value and decreasing said quantizer value  $Q$  if said  
8         Lagrange multiplier  $\lambda$  falls below a minimum  $\lambda$  threshold.

1                    11.    The computer-readable medium as claimed in claim 10 wherein  
2   said set of computer instructions further implement the steps of:  
3        recalculating said Lagrange multiplier  $\lambda$  if said quantizer value  $Q$  is  
4        adjusted.

1                    12.    The computer-readable medium as claimed in claim 10 wherein  
2   said Lagrange multiplier  $\lambda$  is increased or decreased by an amount dependent upon  
3   said quantizer value  $Q$ .

1                    13.    The computer-readable medium as claimed in claim 9 wherein said  
2   set of computer instructions further implement the steps of:  
3        calculating a visual mask value  $M$ ; and  
4        increasing said Lagrange multiplier  $\lambda$  when said visual mask value  $M$  times  
5        said Lagrange multiplier  $\lambda$  is less than a maximum threshold for said  
6        Lagrange multiplier  $\lambda$ .

1                    14.    The computer-readable medium as claimed in claim 13 wherein  
2   said maximum threshold for said Lagrange multiplier  $\lambda$  is dependent upon said  
3   quantizer value  $Q$ .

1                   15.     The computer-readable medium as claimed in claim 13 wherein  
2     said set of computer instructions further implement the steps of:  
3             increasing said Lagrange multiplier  $\lambda$  when a buffer exceeds an overflow  
4             threshold value and increasing said quantizer value  $Q$  if said Lagrange  
5             multiplier  $\lambda$  exceeds a maximum  $\lambda$  threshold; and  
6             decreasing said Lagrange multiplier  $\lambda$  when a buffer falls below an  
7             undererflow threshold value and decreasing said quantizer value  $Q$  if said  
8             Lagrange multiplier  $\lambda$  falls below a minimum  $\lambda$  threshold.

1                   16.     The computer-readable medium as claimed in claim 15 wherein  
2     said set of computer instructions further implement the steps of:  
3             recalculating said Lagrange multiplier  $\lambda$  if said quantizer value  $Q$  is  
4             adjusted.